COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF INDUSTRIAL ACCIDENTS

TREATMENT GUIDELINES
REVISED EFFECTIVE MARCH 13, 2004

GUIDELINE NUMBER 2 - CARPAL TUNNEL RELEASE (SURGICAL)

I. Introduction:

The attached clinical guideline has been created to consistently improve health care services provided to injured workers by outlining the appropriate information gathering and decision making processes involved in the management of CTS in adults, **that is determined to be work related.** The guideline is a consensus document, and should be used as a tool to guide various multi-disciplinary health care practitioners to provide quality care to injured workers. The guideline is not intended to substitute for appropriate medical judgement, and is therefore written to be broad enough to allow for a wide range of diagnostic and treatment modalities and to purposely allow for philosophical and practice differences between various licensed, multi-disciplinary health care practitioners that provide care to injured workers with CTS. In order to address the varying clinical differences that may arise in the treatment of CTS within this guideline the following statement is included: ***It is expected that approximately ten percent (10%) of cases may fall outside of this guideline and may be reviewed and outcomes determined on a case by case basis. If objective clinical improvement is delayed or slower than expected, the treating provider must justify the necessity of continued care with a valid clinical rationale, with supporting, objective clinical findings.***

II. Background:

Carpal Tunnel Syndrome (CTS) is a common disorder with symptoms involving the median nerve. The median nerve is vulnerable to compression and injury in the palm and at the wrist, where it is bounded by the wrist (carpal) bones and the transverse carpal ligament. CTS is believed to be caused by local impairment of the median nerve at the carpal canal in the wrist secondary to narrowing or crowding of the nerve in the carpal tunnel. The median nerve is extremely vulnerable to compression and injury in the region of the wrist and palm. The condition may have multiple associations including: 1) space-occupying lesions such as the residual of a wrist fracture, infections, local edema, tumors, flexor tenosynovitis (non-specific as well as that associated with rheumatoid arthritis), foreign bodies, or aberrant muscles; 2) systemic conditions such as pregnancy, obesity, diabetes mellitus, thyroid dysfunction, arthritis, or amyloidosis; 3) overuse of hand and wrist, trauma and repetitive movements, constricting bandages around wrist, or improper postural habits regarding the wrist joint; or 4) it may have a spontaneous or idiopathic onset. The condition can occur at any age but occurs three to five time more frequently in women than men. Carpal Tunnel Syndrome (CTS) that does not resolve with conservation measures or is rapidly progressing may require surgical intervention. Surgical intervention is meant to increase the size of the carpal tunnel.

III. History:

A. A detailed history considering work and non-work activities is essential and should include documentation of duration, evolution, precise anatomic location and intensity of all symptoms.

B. Occupational Relationship: activities requiring continual use of the hands or repetitive motions using force may result in an occupation carpal tunnel syndrome. Prolonged flexion or extension, gripping, pressure over the palm, unusual hand postures (prolonged flexion), trauma and fractures of the wrist and hand are associated with this syndrome, vibration may also contribute. A detailed history considering work and non-work related activities is essential and should include duration, evolution and anatomic location of all symptoms.

C. Both upper extremities must be evaluated. Any objective findings should correlate with the patient's history and symptoms. A history of CTS may elicit *any or all of following*. At least one of the following is required:

1. Character of symptoms: tingling, numbness, pain along the sensory distribution of the median nerve (dull, aching discomfort), hand weakness.
2. Frequency: episodic or constant.
3. Duration: days, weeks, months or years.
4. Location: anatomic involvement, unilateral or bilateral.
5. Association with hand position or activity: repetitive, sustained or forceful wrist/finder motions; vibrating/oscillating tools.
6. Onset: relation to specific work or non-work activities, association with other medical conditions (see review of symptoms).
7. Relief: shaking the hand, vacation (time away from work and/or aggravating non-work activities).
8. Thenar atrophy may progress to marked muscle wasting with corresponding functional impairment. Vasomotor and skin trophic changes may include dryness, coldness, discoloration, and even ulceration within the median nerve distribution.
9. Similar symptoms may be seen in conditions such as more proximal syndrome and should be ruled out.

IV. Physical Examination:

A. Both upper extremities must be evaluated. Any objective findings should correlate with the patient's history and symptoms. At least one of the following is required:

1. Absence of proximal syndrome (e.g. no nerve injury above the wrist).
2. Sensory loss or hyperesthesia to pinprick and light touch in the distal median nerve distribution.
3. Phalen's sign: maximum flexion of wrist to produce paresthesia in median nerve distribution, within 30 seconds, with elbow not greater than 90 degrees of flexion.
4. Tinel's sign: gentle tapping at the volar wrist crease (midline) to produce paresthesia in the median nerve distribution.
5. Inspection and palpation: atrophy of the thenar muscles.
6. Weakness or loss of active thumb opposition.

V. Diagnostic Testing Procedures:

A. The following diagnostic tests are allowed if clinically indicated, even if the procedures have been previously performed under Guideline #1.

- **a.** Laboratory Testing: -one series allowed.
- **b.** Plain X-rays: -up to 4 views are allowed.
- **c.** Electrodiagnostic Testing: studies include electromyography (EMG) and nerve conduction studies (NCS) -one of each test allowed.

VI. Treatment and Therapeutic Procedures:

A. Operative Treatment:

1. Two techniques for surgical release are acceptable:
   - **a.** Open incision
   - **b.** Endoscopic transverse carpal tunnel release
2. Surgery shall be allowed on an outpatient basis only.
3. Surgery shall be performed on only one extremity at a time.
4. One (1) surgical pre-operative visit shall be allowed for education regarding post-operative rehabilitation (e.g. PT, OT).

B. Additional surgical procedures are *not* indicated unless the indications for the following procedures are clearly documented:

1. Tenosynovectomy
2. Opponensplasty
3. Simultaneious Guyon's canal exploration and neurolysis.

C. Post-Operative Treatment:

1. Similar services shall not be duplicated for patients treated by more than one discipline (e.g. physical therapy, allopathic medicine, chiropractic, acupuncture)
2. Office visits allowed in weeks 1-12:
   - **a.** Physician — two (2) visits
   - **b.** Chiropractic — maximum of sixteen (16) visits
   - **c.** Physical therapy — maximum of sixteen (16) visits
   - **d.** Occupational Therapy — maximum of sixteen (16) visits
3. **Acupuncture**

   Acupuncture is an accepted and widely used procedure for the relief of pain and inflammation, and there is prolific scientific evidence to support its use. While the exact mode is only partially understood, western medicine studies suggest that acupuncture stimulates the nervous system at the level of the brain, promotes deep relaxation, and affects the release of neurotransmitters. Acupuncture is commonly used when a pain medication is reduced or not tolerated. It may also be used as an adjunct to physical rehabilitation and/or surgical intervention to hasten the return of functional activity.

C. Post-Operative Treatment, Continued:

1. Acupuncture

a. Office visits allowed in weeks 1-6:

1. Time to produce effect: maximum of six (6) visits in first eight (8) weeks with authorization from a licensed MD or DC.

b. Office visits allowed in weeks 8-12:

1. If functional clinical progress is demonstrated on re-evaluation, ordering physician may authorize an additional ten (10) visits. Maximum visits not to exceed sixteen (16) visits in twelve (12) weeks.

VII. Special Considerations:

A. ***Similar services shall not be duplicated for patients treated by more than one discipline (e.g. physical therapy, allopathic medicine, and chiropractic).***

B. Surgery shall be allowed on an outpatient basis only.

C. ***Surgery shall be performed on only one extremity at a time***.

D. One (1) pre-operative visit shall be allowed for education regarding post-operative rehabilitation (e.g. PT, OT).

VIII. Return to Work Expectations:

A. Ergonomic assessment may be indicated if done by a qualified individual.

Sources: Colorado, Department of Labor and Employment
California, Industrial Medical Council
National Guideline Clearinghouse
American Academy of Orthopedics
Maine, Workers Compensation Board
State of Washington, Department of Labor and Industries
Massachusetts's Health Care Services Board